CLAIMS

What is claimed is:

1. 1. A network service provider system comprising:

2 a first coding unit that is communicatively coupled to a first endpoint via a circuit-

3 switching telephone network and communicatively coupled to a first packet-

4 switching network for transmission of voice information that is associated with

5 a voice call;

6 a first signaling unit that is communicatively coupled to the first coding unit, and to a

7 second signaling unit via a second packet-switching network for transmission

8 of signaling information that is associated with set-up of a voice call;

9 a second coding unit communicatively coupled to a second endpoint and to the second

10 signaling unit;

11 wherein the first signaling unit and the second signaling unit transmit, over the second

12 packet-switching network, signaling information that is associated with a

13 particular voice call; and

14 wherein the first coding unit and the second coding unit transmit, over the first

15 packet-switching network, voice information that is associated with the

16 particular voice call.

1. 2. The system of claim 1, wherein the signaling information that is associated with set-

2 up of a voice call is received in accordance with a first protocol and the signaling

3 information that is transmitted over the second packet-switching network is in

4 accordance with a second protocol that is different than the first protocol.

1   3.   The system of claim 2, wherein the voice information that is transmitted over the first

2   packet-switched network is in accordance with a third protocol that is different than

3   the second protocol.

1   4.   The system of claim 1, wherein the circuit-switching network is a public-switched

2   telephone network (PSTN) and the first packet-switching network is the Internet.

1   5.   The system of claim 1, wherein the first packet-switching network and the second

2   packet-switching network are the same physical network.

1   6.   The system of claim 1, wherein the signaling information that is transmitted over the

2   second packet-switching network utilizes Internet Protocol (IP) as a transport layer

3   protocol.

1   7.   A network service provider system comprising:

2   a first coding unit that is communicatively coupled to a first endpoint via a circuit-

3   switching telephone network and communicatively coupled to a first packet-

4   switching network;

5   a first signaling unit that is communicatively coupled to the first coding unit, and to a

6   second signaling unit via a second packet-switching network;

7   a second coding unit communicatively coupled to a second endpoint and to the second

8   signaling unit; and

9   one or more sequences of instructions stored in a first memory of the first signaling

10   unit and in a second memory in the second signaling unit, which, when

11   executed by the first signaling unit and the second signaling unit, respectively,

12 cause the first signaling unit and second signaling unit to process call signaling

13 information separately from voice information, by performing the steps of

14 in response to receiving, from the circuit-switching telephone network,

15 signaling data that is associated with establishment of a voice call,

16 obtaining a network address of a bearer channel port of the first coding

17 unit on the first packet-switching network;

18 determining that the second signaling unit should receive the voice call; and

19 sending a message to the second signaling unit, through the second packet-

20 switching network, the message including

21 a call identifier that uniquely identifies the voice call throughout the

22 network service provider system,

23 a first address identifier that identifies a network address of the first

24 signaling unit on the second packet-switching network,

25 a second address identifier that identifies a network address of the

26 second signaling unit on the second packet-switching network,

27 a connection descriptor that identifies the network address of the bearer

28 channel port of the first coding unit on the first packet-switching

29 network.

1 8. The system of claim 7, wherein the one or more sequences of instructions cause the

2 first signaling unit and second signaling unit to perform the steps of:

3 in response to receiving the message at the second signaling unit, determining

4 that the second coding unit and the second endpoint should receive the

5 voice call;

6   sending a message to the second coding unit for setting up a connection from

7   the second endpoint to the bearer channel port of the first coding unit;

8   and

      establishing a bearer channel circuit, for transmission of voice information that

9   is associated with the voice call, on the first packet-switching network

10   between the first coding unit and the second coding unit.

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1   9.   The system of claim 8, wherein the one or more sequences of instructions cause the

      first signaling unit and second signaling unit to perform the steps of:

2   sending a call setup message from the second signaling unit to the second

3   endpoint;

4   sending a first alert message from the second endpoint to the second signaling

5   unit to the first signaling unit via the second packet-switching network;

6   sending a modify connection request from the first signaling unit to the first

7   coding unit to set up an end-to-end bearer path between the first

8   endpoint and the second endpoint over the first packet-switching

9   network; and

10   sending a second alert message from the first signaling unit to the first

11   endpoint.

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1   10.   The system of claim 7, wherein the first packet-switching network and the second

2   packet-switching network are the same physical network.

1   11.   The system of claim 7, wherein the second coding unit is communicatively coupled to

2   a second endpoint via a circuit-switching telephone network.

1   12.   The system of claim 7, wherein the first coding unit is communicatively coupled to a

2   private branch exchange (PBX).

1   13.   The system of claim 7, wherein the second coding unit is communicatively coupled to

2   a private branch exchange (PBX).

1   14.   The system of claim 7,

2   wherein the signaling data that is associated with establishment of a voice call is

3   according to a first protocol; and

4   wherein the message sent to the second signaling unit through the second packet-

5   switching network is according to a second protocol that is different than the

6   first protocol.

1   15.   A network service provider system comprising:

2   first coding means that is communicatively coupled to a first endpoint via a circuit-

3   switching telephone network and communicatively coupled to a first packet-

4   switching network for transmission of voice information that is associated with

5   a voice call;

6   first signaling means that is communicatively coupled to the first coding means, and

7   to second signaling means via a second packet-switching network for

8   transmission of signaling information that is associated with set-up of a voice

9   call;

10   second coding means communicatively coupled to a second endpoint and to the

11   second signaling means;

12   wherein the first signaling means and the second signaling means transmit, over the

13   second packet-switching network, signaling information that is associated with

14   a particular voice call; and

15   wherein the first coding means and the second coding means transmit, over the first

16   packet-switching network, voice information that is associated with the

17   particular voice call.

1   16.   A network service provider system comprising:

2   first coding means that is communicatively coupled to a first endpoint via a circuit-

3   switching telephone network and communicatively coupled to a first packet-

4   switching network;

5   first signaling means that is communicatively coupled to the first coding means, and

6   to second signaling means via a second packet-switching network;

7   second coding means that is communicatively coupled to a second endpoint and to the

8   second signaling means; and

9   means for causing the first signaling means and the second signaling means to process

10   call signaling information separately from voice information, comprising:

11   means for obtaining a network address of a bearer channel port of the first

12   coding means on the first packet-switching network in response to

13   receiving, from the circuit-switching telephone network, signaling data

14   that is associated with establishment of a voice call;

15   means for determining that the second signaling means should receive the

16   voice call; and

17   means for sending a message to the second signaling means, through the

18   second packet-switching network, wherein the message includes

19   means for uniquely identifying the voice call throughout the network

20   service provider system,

21   means for identifying a network address of the first signaling means on

22   the second packet-switching network,

23   means for identifying a network address of the second signaling means

24   on the second packet-switching network,

25   means for identifying the network address of the bearer channel port of

26   the first coding means on the first packet-switching network.

27   17.   The system of claim 16, wherein the means for causing the first signaling means and

28   second signaling means to process signaling information separately from the voice

29   information comprise:

30   means for determining, in response to receiving the message at the second signaling

31   means, that the second coding means and the second endpoint should receive

32   the voice call;

33   means for sending a message to the second coding means for setting up a connection

34   from the second endpoint to the bearer channel port of the first coding means;

35   and

36   means for establishing a bearer channel circuit, for transmission of voice information

37   that is associated with the voice call, on the first packet-switching network

38   between the first coding means and the second coding means.

1   18.   The system of claim 17, wherein the means for causing the first signaling means and
2   second signaling means to process signaling information separately from the voice
3   information comprise:
4   means for sending a call setup message from the second signaling means to the
5   second endpoint;
6   means for sending a first alert message from the second endpoint to the second
7   signaling means to the first signaling means via the second packet-switching
8   network;
9   means for sending a modify connection request from the first signaling means to the
10   first coding means to set up an end-to-end bearer path between the first
11   endpoint and the second endpoint over the first packet-switching network; and
12   means for sending a second alert message from the first signaling means to the first
13   endpoint.

1   19.   The system of claim 16,
2   wherein the signaling data that is associated with establishment of a voice call is
3   according to a first protocol; and
4   wherein the message sent to the second signaling means through the second packet-
5   switching network is according to a second protocol that is different than the
6   first protocol.

1   20.   A computer-readable medium carrying one or more sequences of instructions for
2   processing voice call signaling information separately from voice information, which

3   instructions, when executed by one or more processors, cause the one or more processors

4   to carry out the steps of:

5   in response to receiving, from a circuit-switching telephone network, signaling data

6   that is associated with establishment of a voice call, obtaining a network

7   address of a bearer channel port of a first coding unit on a first packet-

8   switching network;

9   determining that a second signaling unit should receive the voice call; and

10   sending a message to the second signaling unit, through a second packet-switching

11   network, the message including

12   a call identifier that uniquely identifies the voice call throughout a network

13   service provider system,

14   a first address identifier that identifies a network address of a first signaling

15   unit on the second packet-switching network,

16   a second address identifier that identifies a network address of the second

17   signaling unit on the second packet-switching network,

18   a connection descriptor that identifies the network address of the bearer

19   channel port of the first coding unit on the first packet-switching

20   network.

1   21.   The computer-readable medium of claim 20, wherein the one or more sequences of

2   instructions cause the one or more processors to carry out the steps of:

3   in response to receiving the message at the second signaling unit, determining that a

4   second coding unit and an associated destination endpoint should receive the

5   voice call;

6   sending a message to the second coding unit for setting up a connection from the

7   destination endpoint to the bearer channel port of the first coding unit; and

8   establishing a bearer channel circuit, for transmission of voice information that is

9   associated with the voice call, on the first packet-switching network between

10 the first coding unit and the second coding unit.

1   22.   The computer-readable medium of claim 21, wherein the one or more sequences of

2   instructions cause the one or more processors to carry out the steps of:

3   sending a call setup message from the second signaling unit to the destination

4   endpoint;

5   sending a first alert message from the destination endpoint to the second signaling

6   unit to the first signaling unit via the second packet-switching network;

7   sending a modify connection request from the first signaling unit to the first coding

8   unit to set up an end-to-end bearer path between a source endpoint and the

9   destination endpoint over the first packet-switching network; and

10 sending a second alert message from the first signaling unit to the source endpoint.